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Spectrophotometric Determination Of Diltiazem In Pharmaceutical Samples With Vanadium (V)

Rupali Shrivastava* and Mahima Kapoor

Department of Chemistry, Faculty of Basic and Applied Science, Vivekananda Global University, Jaipur, India

shrivastava.rupali@vgu.ac.in

An analytical method has been developed for quantitative determination of diltiazem, chemically (+)-cis-1,5-benzothiazepin-4-(5H)one, 3-(acetyloxy)-5-[2-(dimethyl amino)ethyl]-2,3-dihydro-2-(4-methoxyphenyl)-monohydro chloride, by complexation with V(V) spectrophotometrically. Diltiazem is a calcium channel blocker type antihypertensive drug. Diltiazem forms an stable 1:1 complex with Vanadium (V) with λ_{max} 290nm, molar absorptivity coefficient of complex $\epsilon = 1.5 \text{ mol}^{-1} \text{ cm}^{-1}$, Beer's law range 0.6 mg/ml to 3.6 mg/ml with relative standard deviation was found to be 0.296 and correlation coefficient 1.01. Interference of foreign metal ions and effect of temperature and pH was also studied. On the basis of above studies structure of the complex has been proposed. The procedure is rapid, accurate with precision and can be used by pathologists and in industrial sectors for determination and quality test of diltiazem in pharmaceutical samples

Keywords: spectrophotometric, antihypertensive drug, diltiazem